

NEW *ROSA* (ROSACEAE) IN CALIFORNIA AND OREGON

BARBARA ERTTER

University and Jepson Herbaria, University of California, Berkeley, CA 94720-2465, and
Missouri Botanical Garden, P.O. Box 299, St. Louis, MO 63166-0299, USA
ertter@berkeley.edu

WALTER H. LEWIS

Washington University, Department of Biology, St. Louis, MO 63130-4899, and
Missouri Botanical Garden, P.O. Box 299, St. Louis, MO 63166-0299, USA
lewis@biology.wustl.edu

ABSTRACT

Two new roses are described from California and adjacent Oregon, with keys to distinguish each from the typical representative of their respective species. *Rosa pisocarpa* A. Gray subsp. *ahartii* Ertter & W. H. Lewis differs from typical *R. pisocarpa* by generally having fewer and larger leaflets, fewer flowers, and sepals that are most commonly eglandular, among other features. It is the characteristic member of the *R. blanda* Aiton complex in the northern Sierra Nevada and southern Cascade Range, where existing collections have been variously identified as *R. pisocarpa*, *R. woodsii* Lindl. subsp. *ultramontana* (S. Watson) Roy L. Taylor & MacBryde, *R. californica* Cham. & Schldl., and *R. bridgesii* Crépín ex Rydb. The rank of subspecies is used to indicate a significant ecogeographic component of the species' range. In contrast, varietal rank is used for a localized expression of *R. gymnocarpa* Nutt. occurring on open ultramafic substrates in northwestern California and adjacent Oregon, described here as *Rosa gymnocarpa* var. *serpentina* Ertter & W. H. Lewis. Diagnostic characters include relatively short stature, fewer and blunter leaflets, and pedicels that are frequently eglandular.

Key Words: California, new taxa, Oregon, *Rosa gymnocarpa*, *Rosa pisocarpa*, *serpentina*.

The taxonomy of the genus *Rosa* L. (Rosaceae) is notoriously difficult, complicated by extensive phenotypic plasticity, rampant hybridization, and polyploidy. These factors, when addressed by differing taxonomic philosophies, have resulted in radically different treatments of *Rosa* in North America. At one extreme, Rydberg (1918) recognized 129 native species in the most recent attempt to provide uniform monographic coverage of the entire continent. In contrast, Erlanson (1932, 1934) accepted only 15 full species of native North American roses, plus seven additional "ecotype species" and four putative hybrids. Her conclusions were based on cytogenetics, experimental hybridizations, common garden experiments, and extensive field observations.

Erlanson did not summarize her conclusions in a monographic format, and no consensus treatment has been adopted by subsequent floras (e.g., Abrams 1944; Cronquist 1961; Cronquist and Holmgren 1997; Ertter 1993; Kearney and Peebles 1951; Munz 1959). One unifying feature has nevertheless been a conservative approach to *Rosa* taxonomy, with relatively few species recognized. There has also been a general reticence to describe new taxa and thereby risk following in the footsteps of Rydberg (1917, 1918) and his fellow "splitter" Greene (1899, 1911, 1912), both of whom described a plethora of species that currently reside in synonymy.

We agree that this caution has been well justified, especially given Erlanson's (1934: 204) observation that "It is not impossible to find on the same bush two of some of the species listed by Rydberg." Our respective studies (e.g., Ertter 1993; Lewis 1959a, 1959b, 1959c, 1962, 1965, 2008; Lewis and Ertter 2007) have nevertheless led us to conclude that there is taxonomic structure within North American *Rosa* beyond what has recently been recognized. Our approach has been to focus on the general occurrence of unique suites of morphological and ecological features, or at least notably differing probabilities and/or ranges of variation in these features, that are associated with definable ecogeographic settings. Taxa circumscribed by this approach are not always well differentiated from one another, due to the inherent complexity of the genus, but the alternative is to gloss over ecogeographically meaningful components of biodiversity that have significance for conservation planning, restoration efforts, and horticultural purposes.

To discern these ecogeographically based taxa, we have relied primarily on extensive field studies and examination of herbarium specimens (especially MO, UC/JEPS, RSA/POM, CAS/DS, and CHSC), supplemented by common garden studies. Many existing herbarium specimens are inadequate for some of the most critical diagnostic characters, such as the mid-stem prickles, so

the accumulation of fully representative additional collections (deposited in UC and MO) and detailed observations of field populations have been extremely important. Cytological studies are currently underway, but results are still preliminary and ambiguous. Existing molecular analyses (e.g., Bruneau et al. 2007; Joly & Bruneau 2007) are likewise insufficient to address species-level questions in California, although intriguing questions are being raised.

Our conclusions will be incorporated in pending treatments for *Flora of North America North of Mexico* and *The Jepson Manual*. The present paper describes two new taxa occurring in California and adjacent Oregon needed for these publications. New combinations in *Rosa nutkana* C. Presl and *R. woodsii* Lindl. have recently been published elsewhere (Lewis & Ertter 2007); recent and future papers address variation within the *Rosa carolina* L. (Lewis 2008) and *R. californica* Cham. & Schtdl. complexes (Ertter in prep.). As will be seen, we have adopted a three-tiered approach to taxonomic ranks within North American *Rosa*. The species rank is used for the most consistently distinct entities, which are also those that have been most commonly recognized even in the more conservative treatments. Major ecogeographic components within species are treated as subspecies, while unique localized expressions are treated as varieties.

A NEW SUBSPECIES OF *ROSA PISOCARPA*

Rosa pisocarpa A. Gray is the westernmost member of the *Rosa blanda* Aiton complex, typically occurring west of the Cascade Range from southern British Columbia south to northwestern California as far as Elk Mountain, Mendocino County. The typical expression is a moderately tall thicket-forming shrub with clusters of relatively small flowers that mature into round, pea-sized hips (hence the Latin epithet). Prickles are few, generally occurring as relatively stout, straight infrastipular pairs; leaflets tend to be ovate with flaring teeth; and the sepals generally have stipitate glands and elongate expanded tips. Although the species mostly occurs west of the Cascade Range, populations with *pisocarpa* characters can be found in interior regions along major rivers, such as the Columbia River Basin, where they evidently intergrade with another member of the *R. blanda* complex, *R. woodsii* subsp. *ultramontana* (S. Watson) Roy L. Taylor & MacBryde, which is the characteristic member of the complex in the lowlands and adjacent mountains between the Cascade Range and northern Rocky Mountains (Lewis and Ertter 2007). This latter taxon differs in generally having more numerous and more slender prickles, more obovate leaflets with forward-oriented teeth, eglandular sepals with shorter tips, and

more ovate hips. The vestiture of the rachis also tends to be more finely and evenly velutinous than in *R. pisocarpa*.

Except for the aforementioned intermediate populations on the interior rivers, most members of the *R. blanda* complex in far western North America can be assigned to either *R. pisocarpa* or *R. woodsii* s.l. with some degree of confidence. The outstanding exception comprises populations from the northern Sierra Nevada and southern Cascade Range in northern California and adjacent Oregon, which tend to be relatively low open shrubs with few (or no) prickles, relatively large ovate leaflets with flaring teeth, few flowers, and ovate hips. Sepals are most commonly eglandular with relatively short tips, although populations with glandular sepals and/or expanded tips are interspersed. In addition to being variously identified as *R. pisocarpa* and *Rosa woodsii* var. *ultramontana*, collections have often been identified as *R. californica*, since the prickles are sometimes curved, though typically more slender than is characteristic of *R. californica*. Identifications as *Rosa bridgesii* Crépín ex Rydb. have also occurred. Duplicates of the same collection, or multiple collections from the same population, have occasionally been given different identifications.

Given this level of problematic taxonomic assignment, and the relative (for *Rosa*) uniformity within the geographic area of concern, we believe that the best solution is to recognize the populations in question as comprising a distinct taxon, described here as a new subspecies of *R. pisocarpa*. The closer relation to typical *R. pisocarpa* than to *R. woodsii* subsp. *ultramontana* or *R. californica* is deduced from leaflet shape, rachis vestiture, and the occasional presence of stalked glands on the sepals, as well as from the complex zone of intergradation in the Siskiyou Mountains of Siskiyou and Trinity counties, California. The rank of subspecies is used because the ecogeographic range is larger and more complex than that of the varieties we are recognizing in North American *Rosa*, although smaller than that of most other subspecies being recognized in the genus.

***Rosa pisocarpa* A. Gray subsp. *ahartii* Ertter & W. H. Lewis, subsp. nov. (Fig. 1)—TYPE:** USA, California: Butte Co., Black Bart Road 1.3 mi from Forbestown Road, ca. 10 air mi ESE of Oroville, roadside in Foothill Woodland, 2150 ft elev., 39°29.060'N 121°21.634'W, 23 Jun 2007, B. Ertter & L. Ahart 19074 (Holotype: UC; Isotypes: K, LE, MO, MT, OSC, NY, RSA, US, + other duplicates to be distributed)

Differt a subsp. *pisocarpa* floribus paucioribus sepalis plerumque eglandulatis foliis paucioribus majoribus.

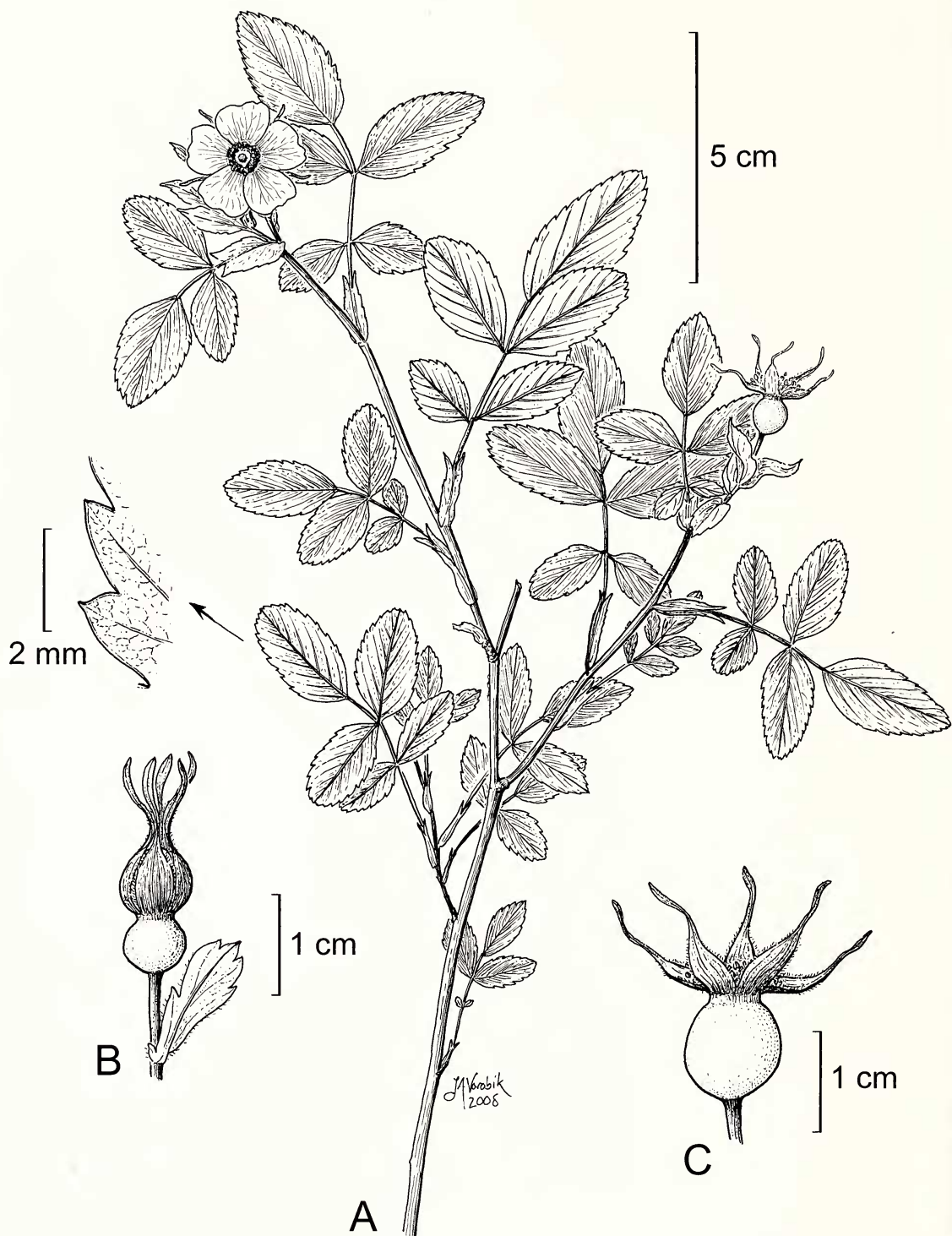


FIG. 1. *Rosa pisocarpa* subsp. *ahartii*. A. Habit, showing frequent absence of prickles, leaves with 5 leaflets, and few flowers, with enlargement of leaflet margin showing single glandular teeth (*Ahart 12144*). B. Flower bud, glabrous pedicel, subtending bract, and glandular sepals with moderately prolonged tips (*Ertter et al. 15678*). C. Mature hip with sepals (*Ertter & Ahart 18750*).

Rhizomatous shrubs. **Stems** solitary to loosely clustered, sometimes forming thickets, erect, (0.2–) 0.4–1.4(–1.8) m tall, growing tips puberulent but soon glabrous, sometimes glaucous when young, with age dark reddish brown, outer layer sometimes exfoliating as thin ash-gray sheet; prickles usually sparse to absent at least distally, occurring primarily as 1–2 straight to somewhat curved infrastipular prickles 2–5 mm long \times 1–2 mm wide at base, flaring to an attachment to 8 mm long, sometimes compressed, smaller internodal prickles usually absent. **Leaves** (5–) 6–11(–13) cm long \times (3–)4–7(–10) cm wide; stipules 10–20(–30) mm long (including 3–5 mm long auricle), 3–5(–7) mm wide, the margins subentire to shallowly crenate to irregularly erose; petiole and rachis subglabrous to finely puberulent to pubescent with hairs to 1 mm, stipitate glands absent, pricklets sometimes present; leaflets 5–7, most commonly 5, sparsely pubescent; terminal leaflet with petiole 5–15(–20) mm long, the blade elliptic-ovate, usually widest at or below middle, basally obtuse (rounded), apically obtuse to acute, (1.5–)2–4.5(–6) cm long \times (1–)1.5–2(–3) cm wide, usually singly serrate with 10–15(–20) acute 1° teeth per side on distal 4/5 of blade. **Inflorescences** commonly 1–3-flowered on side branches, rarely 10-flowered or more in terminal candelabras; bracts 6–20 mm long \times 2–5 mm wide, the margins irregularly gland-toothed; pedicels 1–2(–2.5) cm long, glabrous. **Flowers** 2.5–3.5 cm diam.; hypanthium glabrous, ovoid-urceolate, 4–5 mm long \times 2.5–4 mm wide in bud, with a narrowed neck \pm 2 mm wide; sepals subglabrous to puberulent, sometimes with but more often without stipitate glands, 10–17 mm long \times 2.5–3 mm wide (including prolonged tip 2–10 mm long \times 1–2 mm wide), persistent at fruit maturity; petals rose-pink, 12–18 mm long \times 10–17 mm wide; styles numerous, pilose, exserted 1–2.5 mm beyond 2 mm diam. orifice in \pm 3.5 mm diam. disc. **Hips** scarlet, glabrous, 8–15 mm long \times 8–13 mm wide, the body subglobose to ovoid, the neck 1 mm long \times 2.5–3.5 mm wide, the sepals persistent. **Achenes** 5–20 per hip, cream to light brown, 3.5–4.5 mm long \times 1.5–2.5 mm wide.

Additional representative collections. USA, **CALIFORNIA: Butte Co.**, type locality, 2 Jun 2002, *Ahart 9680* (CHSC, JEPS, MO), type locality, 1 Aug 2006, *Ertter & Ahart 18750* (MO, UC, + duplicates to distribute), ca. 20 yards S of upper jct. of Forbestown Rd. and Black Bart Rd., ca. 3 air mi SW of Forbestown, 13 Jul 2005, *Ahart 12144* (CHSC, JEPS), same locality, 23 Jun 2007, *Ertter & Ahart 19075* (UC + duplicates to distribute), Kimshe Cr. ca. 1/4 mi E of Table Mt., 1 Aug 1997, *Ahart 7797* (CHSC, JEPS), Snag Lake, 7 mi E of Chaparral, 20 Jul 1938, *Heller 15283* (MO, POM, UC), Head Dam Rd., 0.5 mi NW of

Powellton Rd., N of De Sabla, 22 Jun 1993, *Oswald & Ahart 5555* (CHSC, UC); **Nevada Co.**, 5.6 mi E of Emigrant Gap on U.S. Hwy 40, 30 Jun 1940, *Beach 814* (UC), Fall Creek crossing on side road off Bowman Lake Rd., 12 Jun 1997, *Ertter et al. 15678* (MO, UC); **Plumas Co.**, E of Hwy 89, ca. 1.5 mi S of Crescent Mills, 16 Oct 2001, *Ahart 9392* (JEPS, CHSC), W of Squirrel Creek, ca. 7 air mi SW of Quincy, 24 May 2004, *Ahart & Guardino 10946* (JEPS); **Sacramento Co.**, 3 mi E of Folsom, 15 May 1949, *Tomich 46* (UC); **Shasta Co.**, Tamarack Rd. near summit, 9 Jul 1898, *Baker 423* (UC); **Siskiyou Co.**, Little Shasta Rd. at upper crossing of Little Shasta River, Cascade Range ca. 20 air mi E of Yreka, ca 4800 ft, 30 Jul 2006, *Ertter 18746* (MO, UC); **Tehama Co.**, E side Hwy 32, ca. 4 mi S of bridge across Deer Creek, 28 Aug 2001, *Ahart 9181* (CHSC, JEPS), Judd Creek on Ponderosa Way 0.5 mi S of Plum Creek Rd., 14 Jun 1992, *Ertter & Shevock 11170* (MO, UC); **Yuba Co.**, tributary of Buckeye Creek between Scales Rd. & La Porte Rd. ca. 1 mi from jct., 23 Jun 2007, *Ertter & Ahart 19076* (MO, UC). **OREGON: Lake Co.**, 26 mi W of Lakeview on Rt. 140, 0.5 mi E of Quartz Creek crossing in Fremont National Forest, ca. 5300 ft, 29 Jul 2006, *Ertter 18731* (MO, OSC, UC).

Phenology, habitat, and distribution. Flowering June to August, fruiting August to October. Growing on streamsides, meadow margins, and seasonally moist areas in openings in mid-montane forests, in full sun to partial shade, from 150 to 1700 m elevation, in the northern Sierra Nevada and southern Cascade Range in northern California and adjacent Oregon.

The representative specimens cited above define the core morphological identity and geographic distribution of *Rosa pisocarpa* subsp. *ahartii*, as here circumscribed. The full geographic range of the subspecies remains to be determined, since existing herbarium specimens are both sparse and frequently inadequate for confident identification, given the high level of plasticity in *Rosa*. To the west, populations that are intermediate between the two subspecies of *R. pisocarpa* are commonly encountered: e.g., Siskiyou Co., Metcalf's Ranch, NE base of Mt. Eddy, *Heller 12112* (UC); Trinity Co., Coffee Creek at Union Creek Fork, *Hall 8557* (UC). Collections that may represent subsp. *ahartii* occur as far west as Ashland Butte in Oregon (*Jepson 5281*, JEPS), while populations with most of the diagnostic features of subsp. *pisocarpa* can be found as far inland as Butte Meadows in Butte Co., California (e.g., *Oswald & Ahart 4346*: CHSC, UC).

The boundary with *R. woodsii* subsp. *ultramontana* to the east is more sharply defined, though not absolute, in that plants referable to this latter taxon (on the basis of prickles, leaflet shape, tooting, and vestiture) enter the Califor-

nia Floristic Province only in the valleys extending west from the Great Basin Province in northeastern California (*sensu* Hickman 1993), including Sierra Valley and Honey Lake Valley. Possible intermediates between *R. pisocarpa* subsp. *ahartii* and *R. woodsii* subsp. *ultramontana* include Nevada Co., Truckee Canyon, *Brandegeae s.n.* (UC) and Plumas Co., 3/4 mi NE of Chester, strand of Lake Almanor, *Ahart 9202* (CHSC, JEPS). It is conceivable that subsp. *ahartii* is the hybrid derivative of *R. pisocarpa* and *R. woodsii* subsp. *ultramontana*, but if so, it has evidently stabilized sufficiently to be the dominant representative of the *R. blanda* complex within its core range. Specimens from the Yosemite Valley area are also difficult to assign with certainty, with subsp. *ahartii* possibly extending as far south as Mariposa County (e.g., Mariposa Big Trees, *Jepson 5657*: JEPS).

A close relationship to *Rosa californica* seems unlikely, in spite of the occasionally curved prickles that are a key diagnostic feature of this taxon (Munz 1959; Ertter 1993). Not only does *R. californica* tends to be a coarser plant with relatively larger hips, it also usually has a distinctive vestiture on the leaflets and rachis, consisting of longer, shaggier hairs than characterizes members of the *R. blanda* complex, including the new entity in question. Furthermore, members of the *R. blanda* complex are diploids, whereas *R. californica* is tetraploid, such that hybridization is unlikely to occur on a regular basis. Still, there are some populations that combine features of *R. californica* and *R. pisocarpa* subsp. *ahartii*, such as stouter prickles than is the norm for the latter; a prime example is a population from North Honcut Creek on the Ahart Ranch (e.g., *Ahart 9709*: CHSC, JEPS, MO), situated at the very base of the Sierra Nevada foothills in Butte County.

The epithet honors Lowell Ahart (b. 1938), an avid avocational collector who has added significantly to our knowledge of the flora of northern California, and whose special effort to collect material used in the current study has been instrumental in deducing the patterns of variation of *Rosa* in the area of interest. "Ahart rose" is an appropriate vernacular name. The two subspecies can be distinguished with the following key:

- 1a. Flowers (1–)3–10; sepals most frequently with conspicuous stalked glands and conspicuously prolonged and expanded tips; prickles usually paired at nodes, though often sparse to absent in upper plant; hip globose, abruptly narrowed to 2–3 mm wide neck; leaflets more often 7 than 5, the terminal leaflet 1.5–3.5 cm long.subsp. *pisocarpa*
- 1b. Flowers 1–3(–10); sepals most frequently glandless with tips only moderately prolonged and expanded; prickles 0, single, or paired at nodes, sparse to absent throughout; hip ovoid to subglobose, gradually to abruptly narrowed

to 2.5–3.5 mm wide neck; leaflets more often 5 than 7, the terminal leaflet 2–4.5(–6) cm long.subsp. *ahartii*

Note added in proof: Root tip counts (W. Lewis, unpubl. data) and flow cytometric analysis of leaf DNA (A. Bruneau, unpubl. data) indicate that *R. pisocarpa* subsp. *ahartii* is tetraploid (2n = 28), suggesting a possible hybrid origin involving *R. californica*.

A NEW VARIETY OF *ROSA GYMNOCARPA*

The wood rose, *Rosa gymnocarpa* Nutt., is perhaps the most distinctive species of *Rosa* in western North America. The key diagnostic character is the mature hip, from which the sepals collectively separate as a unit along a clean line of dehiscence. The species is also readily recognized in flower, by virtue of its typically solitary flowers, small hypanthia (only 1.5–2 mm wide), commonly stalked-glandular pedicels, and glabrous, glandular-toothed leaflets. It is also one of the only species that prefers semi-shade of forest floors rather than full sun along watercourses.

In general, the species is remarkably uniform throughout its range, which extends from southern British Columbia to western Montana, skirting the Great Basin south to the mountains of central California, reappearing as a disjunct occurrence in the Palomar Mountains of San Diego, California. There are nevertheless some sporadic and localized variants; e.g., populations with finely puberulent leaf rachises in the Coast Ranges of California, populations with prominent infrastipular prickles in the San Francisco Bay Area, and populations lacking stalked glands on the pedicels in the Siskiyou Mountains. Some of these variants probably coincide with species described by Greene (1912) in the *R. gymnocarpa* complex and might qualify as subspecies or varieties, but at the present time our evaluation is that their occurrence is too sporadic or poorly defined to merit taxonomic recognition. The one exception, for which there is no existing name, is described here. The rank of variety is used since it occurs in a relatively localized, well-defined ecogeographic setting.

***Rosa gymnocarpa* Nutt. var. *serpentina* Ertter & W. H. Lewis, var. nov. (Fig. 2)—TYPE: USA, California: Del Norte Co., Old Gasquet Toll Road 1.3 mi from junction of North Fork Rd. E of Gasquet, ca. 13 air mi ENE of Crescent City, stunted forest on serpentinic substrate, 15 May 1994, *B. Ertter 12768* (Holotype: UC; Isotypes: MO, NY, OSC)**

A *R. gymnocarpa* typica statura brevis foliolis paucioribus obtusioribus pedicellis saepe eglandulatis differt.

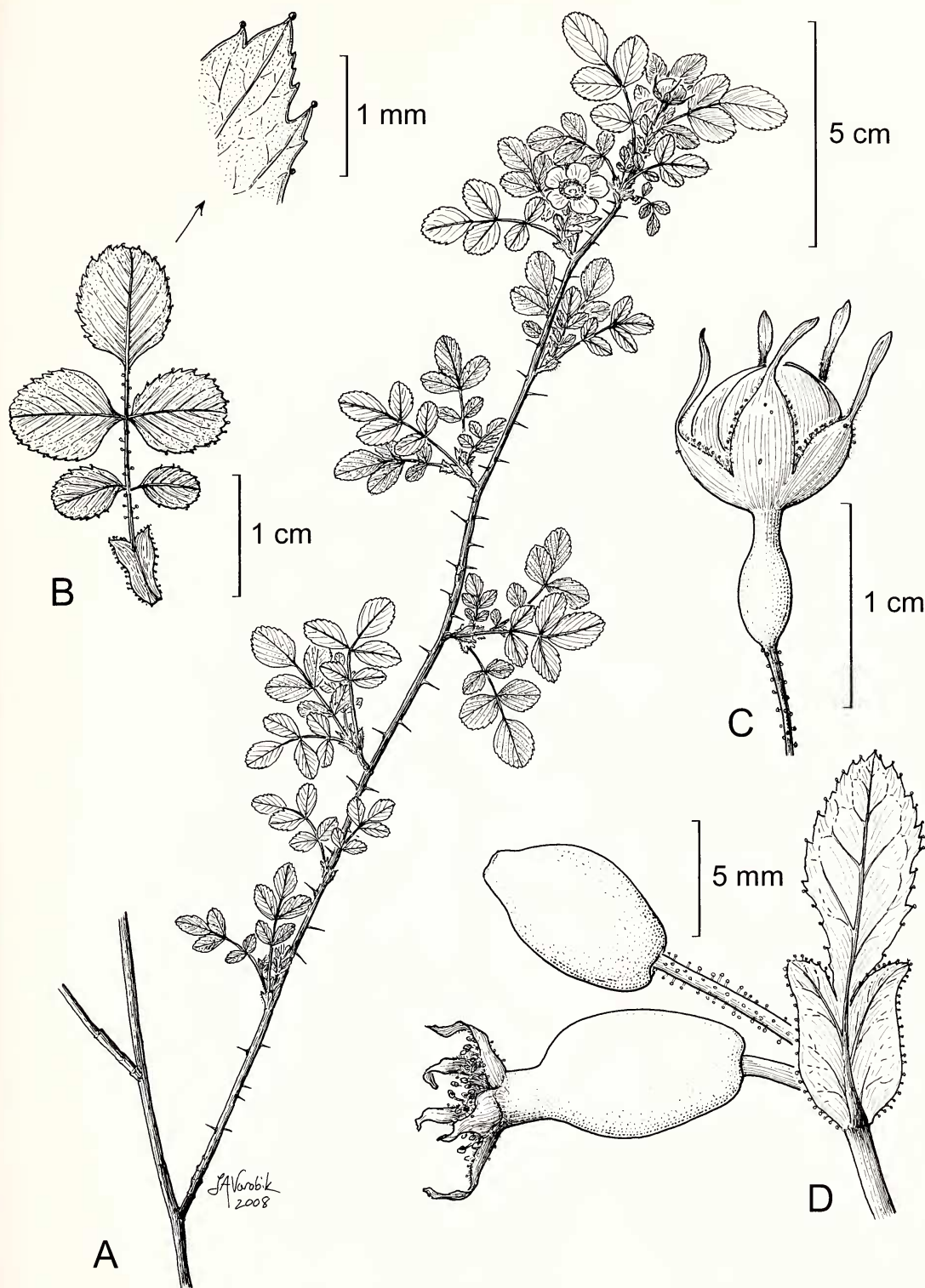


FIG. 2. *Rosa gymnocarpa* var. *serpentina*. A. Habit, showing scattered prickles, leaflets, and solitary flower. B. Leaf with 5 leaflets, with enlargement of doubly glandular-serrate leaflet margin. C. Flower bud with small hypanthium, stipitate-glandular pedicel, and short sepal tips. D. Paired irregularly elongate-ellipsoid hips, one prior to sepal dehiscence, with relatively short pedicels and leafy bract; stipitate-glandular and eglandular pedicels are common in paired arrangements. (A–C drawn from Ertter 12781; D from Ertter 14987).

Rhizomatous shrubs or subshrubs. **Stems** solitary to loosely clustered, erect, (0.1–)0.3–0.6(–1.3) m tall, 2–8 mm diam. at base, sometimes glaucous when young, with age reddish or grayish brown, outer layer sometimes exfoliating as thin ash-gray sheet; prickles sparse to abundant, occurring primarily as straight, slender internodal aciculi 2–8 mm long, less than 1 mm wide at base, abruptly flaring to a 0.5–5 mm long attachment, infrastipular pair sometimes slightly larger and more conspicuous. **Leaves** 2–6(–8) cm long \times 1.5–3(–4) cm wide; stipules 5–11 mm long (including 2–3 mm long auricle) \times 3–5 mm wide, the margins stipitate-glandular; petiole and rachis with scattered stipitate glands and pricklets, otherwise glabrous; leaflets 5–7, most commonly 5, sometimes glandular, otherwise glabrous, often bluish green or red-tinged, relatively thick; terminal leaflet with petiolule 2–10 mm long, the blade broadly elliptic to obovate or ovate to nearly round, basally obtuse to rounded (cuneate), apically obtuse to rounded, sometimes nearly truncate, 0.5–2 cm long \times 0.5–2 cm wide, doubly glandular-serrate with 7–13 acute to obtuse 1° teeth per side on distal 4/5 of blade. **Inflorescences** 1–3-flowered on short side branches, commonly solitary; bracts, when present, 4–8 mm long, the margins stipitate-glandular; pedicels 1–1.5 cm long, with or without stipitate glands, otherwise glabrous. **Flowers** \pm 2 cm diam.; hypanthium glabrous, narrowly ovoid-urceolate, 3–4 mm long \times 1.5–2 mm wide in bud; sepals glabrous, 4–10 mm long, the tip only slightly prolonged and expanded, collectively deciduous at fruit maturity from well-defined line of dehiscence; petals rose-pink, 8–10 mm long \times 6–10 mm wide; styles few, pilose, exserted \pm 1 mm beyond \pm 1 mm diam. orifice in \pm 3 mm diam. disc. **Hips** scarlet, glabrous, irregularly ovoid to elongate-ellipsoid, 7–15 mm long \times 4–8 mm wide, lacking sepals at maturity. **Achenes** 1–4 per hip, cream to light brown, \pm 5 mm long \times \pm 3 mm wide.

Additional representative specimens. USA, **California: Del Norte Co.**, Old Gasquet Toll Rd. 3 mi W of 18-Mile Creek, 15 May 1994, *Ertter 12781* (UC), Old Gasquet Toll Rd. 1.4 mi from jct. North Fork Rd., 22 Jul 1996, *Ertter 14986* (MO, UC + duplicates to distribute), Old Gasquet Toll Rd. 2.5 mi from jct. North Fork Rd., 22 Jul 1996, *Ertter 14987* (UC), Old Gasquet Toll Rd. 2.6 mi from jct. North Fork Rd., 23 Jul 1996, *Ertter 14998* (UC), Old Gasquet Toll Rd. 2.0 mi W of 18-Mile Creek, 2.3 mi from jct. North Fork Rd. E of Gasquet, 23 Jul 1996, *Ertter 15000* (MO, UC), E base of Gordon Mt. and ca. 10 mi N of Big Flat, dry brushy slopes, 3800 ft, 24 Jun 1952, *Munz 17734* (NY), near Gasquet, N side of Middle Fork of Smith River, on old Gasquet Toll Rd., at crossing of 18-Mile Creek, mountain

slopes, 1400 ft, 2 Sep 1939, *Parks & Tracy 16467* (UC); **Humboldt Co.**, Horse Mt., moist places on brushy slopes, red soil in serpentine belt, 4700 ft, 16 Aug 1939, *Tracy 16404* (UC); **Siskiyou Co.**, Preston Peak, 7310 ft, 24 Aug 1929, *Kildale 8844* (DS, UC). **OREGON: Curry Co.**, serpentine ridges near Snow Camp Mt., Siskiyou Mts., 4500 ft, 22 Jun 1936, *Thompson 12876* (MO, NY); **Curry/Josephine Co. line**, Pearsoll Peak, 3500 ft, 18 Jun 1930, *Leach 3009* (OSC, UC); **Josephine Co.**, near Waldo, *Henderson 6027* (MO).

Phenology, habitat, and distribution. Flowering April to June, fruiting July to September. Growing on roadsides, ridges, streambanks, and openings in chaparral and stunted forest on ultramafic (peridotite) substrates, from at least 400 to 1500 m elevation, possibly to 2300 m, in the Siskiyou Mountains of northwestern California and adjacent southwestern Oregon.

Rosa gymnocarpa var. *serpentina* is described to accommodate populations occurring in full sun in chaparral and stunted forests on ultramafic substrates in the Siskiyou Mountains of northwestern California and adjacent southwestern Oregon. These plants tend to be relatively short, with leaflets that are fewer, rounder, and more leathery than is otherwise typical for *R. gymnocarpa*, often with a blue-green or reddish cast. Pedicels are shorter than average and often lack the characteristic stalked glands of typical *R. gymnocarpa*, with this latter feature frequently differing between paired flowers (as in Fig. 2). At its extreme, the variety is quite distinctive, but populations of *R. gymnocarpa* on non-ultramafic substrates in the same general area tend to be intermediate between var. *serpentina* and typical *R. gymnocarpa*. It is possible that the variety represents the hybrid between *R. gymnocarpa* and sympatric *Rosa spithamea* S. Watson, which has similar leaves and gestalt, but even if so, it is now a stabilized entity characteristic of ultramafic substrates in the Siskiyou Mountains. More field work is needed to determine the full biogeographic distribution; sterile specimens from Preston Peak (*Kildale 8844*) in Siskiyou County, California, are tentatively included, and some collections from as far east as Mount Shasta (e.g., *Cooke 11094*, UC) could possibly fall into var. *serpentina*.

The epithet “*serpentina*” is chosen to emphasize the variety’s ultramafic substrate, commonly referred to as serpentine by botanists even when technically a related rock type (e.g., peridotite). “Gasquet rose” is suggested as a vernacular name, in reference to the area where it is most commonly encountered. The two varieties can be distinguished with the following key:

- 1a. Leaflets commonly (5–)7–9 per leaf, the terminal one elliptic to obovate or ovate, apically \pm obtuse or sometimes nearly acute

or rounded, (0.5–)1–3(–6) cm long; pedicels (1–)1.5–2.5(–3.5) cm long; plants to 1.5(–2.5) m tall; generally in shade in and at the edges of forests; southern British Columbia south to southern California, east to Montana

. var. *gymnocarpa*

1b. Leaflets commonly 5(–7) per leaf, the terminal one broadly elliptic to nearly round, apically broadly obtuse to rounded, sometimes nearly truncate, 0.4–2 cm long; pedicels 1–1.5 cm long; plants to 0.6(–1.3) m tall; full sun in ultramafic chaparral and stunted forests; Siskiyou Mountains of southwestern Oregon and northwestern California var. *serpentina*

ACKNOWLEDGMENTS

Special appreciation goes to the administrators and staff of herbaria at CAS-DS, CHSC, JEPS, LE, MICH, MO, NDG, NY, OSC-ORE-WILLU, P, RSA-POM, UC, UTC, and US for access to specimens used in this study. We also thank Lowell Ahart for his dedicated field efforts, Linda Vorobik for her fine line drawings of both new taxa, and Ken Chambers for his cogent review of the manuscript. The inclusion of material relevant to our on-going studies in molecular phylogenetic analyses by Anne Bruneau, Julian R. Starr, and Simon Joly is greatly appreciated. Support to Barbara Ertter from the Lawrence R. Heckard Endowment Fund of the Jepson Herbarium is gratefully acknowledged. We are indebted to staffs of the Jeanette Goldfarb Plant Growth Facility, Department of Biology, Washington University and the University of California Botanical Garden for assistance with and maintenance of our living collections.

LITERATURE CITED

ABRAMS, L. R. 1944. Illustrated flora of the Pacific States: Washington, Oregon, and California. Vol. II: Polygonaceae to Krameriaceae. Stanford University Press, Palo Alto, CA.

BRUNEAU, A., J. R. STARR, AND S. JOLY. 2007. Phylogenetic relationships in the genus *Rosa*: new evidence from chloroplast DNA sequences and an appraisal of current knowledge. *Systematic Botany* 32:366–378.

CRONQUIST, A. 1961. *Rosa*. Pp. 164–171 in C. L. Hitchcock, A. Cronquist, M. Ownbey, and J. W. Thompson (eds.), *Vascular plants of the Pacific Northwest. Part 3: Saxifragaceae to Ericaceae*. University of Washington Publications in Biology, 17: 1–614.

— AND N. H. HOLMGREN. 1997. *Rosa*. Pp. 134–140 in A. Cronquist, N. H. Holmgren, and P. K. Holmgren (eds.), *Intermountain flora: vascular*

plants of the Intermountain West, USA. Vol. 3, Part A: Subclass Rosidae (except Fabales). New York Botanical Garden, Bronx, NY.

ERLANSON, E. W. 1932. American wild roses. *The America Rose Annual* 1932:83–90.

— . 1934. Experimental data for a revision of the North American wild roses. *Botanical Gazette* 96:197–259.

ERTTER, B. 1993. *Rosa*. Pp. 972–973 in J. C. Hickman (ed.), *The Jepson manual: higher plants of California*. University of California Press, Berkeley, CA.

GREENE, E. L. 1899. New western species of *Rosa*. *Pittonia* 4:10–14.

— . 1911. Some western roses. *Leaflets of Botanical Observation and Criticism* 2:132–136.

— . 1912. Certain western roses. *Leaflets of Botanical Observation and Criticism* 2:254–266.

HICKMAN, J. C. 1993. *The Jepson manual: higher plants of California*. University of California Press, Berkeley, CA.

JOLY, S. AND A. BRUNEAU. 2007. Delimiting species boundaries in *Rosa* sect. *Cinnamomeae* (Rosaceae) in eastern North America. *Systematic Botany* 32:819–836.

KEARNEY, T. H. AND R. H. PEEBLES. 1951. *Arizona flora*. University of California Press, Berkeley, CA.

LEWIS, W. H. 1959a. A monograph of the genus *Rosa* in North America. I. *R. acicularis*. *Brittonia* 11: 1–24.

— . 1959b [1958]. A monograph of the genus *Rosa* in North America. II. *R. foliolosa*. *Southwestern Naturalist* 3:145–153.

— . 1959c [1958]. A monograph of the genus *Rosa* in North America. III. *R. setigera*. *Southwestern Naturalist* 3:154–174.

— . 1962. A monograph of the genus *Rosa* in North America. IV. *R. X dulcissima*. *Brittonia* 14:65–71.

— . 1965. Monograph of *Rosa* in North America. V. Subgenus *Hesperhodos*. *Annals of the Missouri Botanical Garden* 52:99–113.

— . 2008. *Rosa carolina* (Rosaceae) subspecies and hybrids in eastern and midwestern United States, Canada, and Mexico. *Novon* 18:192–198.

— AND B. ERTTER. 2007. Subspecies of *Rosa nutkana* and *R. woodsii* (Rosaceae) in western North America. *Novon* 17:341–353.

MUNZ, P. A. 1959. *A California flora*. University of California Press, Berkeley, CA.

RYDBERG, P. A. 1917. Notes on Rosaceae—XI. Roses of California and Nevada. *Bulletin of the Torrey Botanical Club* 44:65–84.

— . 1918. *Rosa*. *North American Flora* 22(6): 483–533.